

CLAIMS

1. A method for polishing a wafer comprising the steps of:
holding a wafer on a rotatable wafer holding plate; and
polishing a surface of the wafer being in contact with a polishing cloth
adhered on a rotatable table in such a state that a polishing agent is supplied
onto the polishing cloth,
wherein the polishing agent is an alkaline solution which contains
silica having particles each in the shape of almost an sphere as a main
component and further an organic base or a salt thereof.
- 10 2. A method for polishing a wafer comprising the steps of:
holding a wafer on a rotatable wafer holding plate; and
polishing a surface of the wafer being in contact with a polishing cloth
adhered on a rotatable table in such a state that a polishing agent is supplied
onto the polishing cloth,
wherein the polishing agent is an alkaline solution which contains
silica dispersed almost uniformly, the silica having particles each in the
shape of almost an sphere and an average particle diameter of 12 nm or less.
- 15 3. The method for polishing a wafer according to claim 2, wherein the
polishing agent is an alkaline solution which contains the silica as a main
component and further an organic base or a salt thereof.
4. The method for polishing a wafer according to claim 1 or 3, wherein
the organic base or the salt thereof is a quaternary ammonium hydroxide.
- 20 5. The method for polishing a wafer according to any of claims 2 to 4,
wherein an average particle diameter of the silica in a dispersion state is in

the range of from 5 nm to 10 nm.

6. The method for polishing a wafer according to any of claims 2 to 5, wherein a maximum particle diameter of the silica in a dispersion state is 12 nm or less.

5 7. The method for polishing a wafer according to any of claims 1 to 6, wherein a pH value of the alkaline solution is in the range of from 10 to 13.

8. The method for polishing a wafer according to any of claims 1 to 7, wherein Na_2CO_3 is used for pH adjustment of the alkaline solution.

9. The method for polishing a wafer according to any of claims 4 to 8, 10 wherein the quaternary ammonium hydroxide is tetramethyl ammonium hydroxide.

10. The method for polishing a wafer according to any of claims 1 and 3 to 9, wherein the organic base or the salt thereof is added up to a dissolution limit of the polishing agent in use.

15 11. The method for polishing a wafer according to any of claims 1 to 10, wherein the wafer is a silicon wafer.

12. The method for polishing a wafer according to any of claims 1 to 11, which is performed in a rough polishing step (a primary polishing step and a secondary polishing step) in a mirror polishing process.

20 13. The method for polishing a wafer according to claim 12, wherein the rough polishing step is the second polishing step.

14. The method for polishing a wafer according to any of claims 1 to 13, wherein the silica is used at a concentration in the range of from 2 to 20 wt %.

15. The method for polishing a wafer according to any of claims 1 to 14, 25 wherein the polishing cloth is of an unwoven cloth type.

16. The method for polishing a wafer according to any of claims 1 to 15, wherein hardness (Asker C hardness) of the polishing cloth is 50 or more.
17. The method for polishing a wafer according to any of claims 1 to 16, wherein stock removal of the wafer is 1 μm or more.